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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Process and apparatus for Charging Textile Fibres into Containers such as Bags and the like

I, PIERINO CROSA, an Italian citizen, of 31, via Milano, Chiavazza (Biella), Italy, do hereby declare the invention for which I pray that a patent may be granted to me and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a process and pneumatically operating apparatus for charging textile fibres into compartments and containers such as bags and the like. A number of such apparatus, employed for charging fibres into bags, are known in the art as bag-filling machines.

The main object of this invention is to improve such apparatus in order to materially improve close packing together of the stowed fibres, avoiding any manual work and utilizing means of greatest simplicity and efficiency.

According to the main characteristic feature of this invention the exhaust-air flow discharged from the apparatus is intermittently sharply interrupted to provide an "air-hammer" action (i.e. sudden pulses of pressure) exerting a packing effect on the stowed fibres. The apparatus according to this invention comprises to this end an exhaust conduit for discharging the fibre-conveying air after separation from the delivered fibres, a valve interposed in the said conduit, and means arranged for intermittently operating the valve during filling of a bag to suddenly interrupt the air discharge from the conduit.

The accompanying drawing shows diagrammatically the head portion of a conventional bag-filling machine improved according to this invention, by way of example.

The head comprises a sheet metal cylindrical casing 1 having a cover plate 2 and a frusto-conical base 3 connected thereto in a pressure-tight manner. A conveyor conduit 4 reaches into the head portion and is downwardly curved therein, the said conduit leading to an inverted funnel 5 of foraminated sheet metal, the large end of the funnel being circumferentially secured to the lower end of the frusto-conical base 3.

The head opens at the bottom into one or more delivery nozzles in a manner known *per se*. The fibres are supplied to the head through the conduit 4 within which they are conveyed by a continuous air stream. On reaching the foraminated funnel 5 the conveying air escapes through the apertures in the funnel to the inside of the casing 1, the fibres falling into the bags fitted to the nozzles.

A conduit 6 for discharging the conveying air extends from the cover plate 2 on the head portion and has interposed therein a butterfly valve 7 biassed by a spring (not shown) towards its closed position. The butterfly valve spindle carries at one end a crank 8 carrying a roller or other suitable cam follower acted upon by a double cam 9 keyed to a shaft 10. The latter is continuously rotated from an electric motor (not shown on the drawing) through a suitable reducing gear.

In operation each boss on the cam 9 sequentially engages the roller on the crank 8 for the butterfly valve thereby gradually shifting the latter to its widest open position, whereupon the roller is released from the boss and the valve sharply returns to its closed position under the action of its return spring. Consequently, an "air hammer" occurs in the machine head and propagates towards the delivery nozzles and the fibres stowed in the bags, which undergo a pneumatic packing impact on each half revolution of the cam 9.

For convenience the butterfly valve and control therefor is arranged on a tube section 11 which can be fitted to the air exhaust conduit of any fibre stowing apparatus,

[*Price 4s. 6d.*]

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whether it is a bag filling appliance according to the example shown or any other device for delivering fibres to stowing containers or compartments.

WHAT I CLAIM IS:—

1. A process for charging textile fibres into bags and the like employing a pneumatically operating charging apparatus, characterized by the fact that the exhaust-air flow from the apparatus is intermittently sharply interrupted to provide air-hammer action exerting a packing effect on the stowed fibres.

2. Apparatus for carrying out the process of claim 1, comprising a conduit for discharging the fibre-conveying air after separation from the delivered fibres, characterized by a valve interposed in the said conduit, and means arranged for intermittently operating the valve during filling of a bag to sharply interrupt the air discharge from the conduit.

3. Apparatus as claimed in Claim 2, wherein the valve is of the butterfly type, the valve spindle being biassed by a spring towards its closed position and being provided with a crank which is periodically displaced to its valve-opening position, the spring effecting sharp return of the valve to its closed condition.

4. Apparatus as claimed in claim 3, wherein the crank is operated by a cam which is uniformly rotated by a motor.

5. Apparatus for charging textile fibres into compartments, bags or the like, constructed and arranged substantially as described herein with reference to the accompanying drawing.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*